

# Memorandum

To: S. J. Trent A0-21 Date: April 4, 2005

From: S. L. Fitzgerald, Manager *AG* For SLF  
WSCF Analytical Chemistry

cc: w/Attachments w/o Attachments

T. F. Dale	S3-28	D. J. Hart	S3-30
H. K. Meznarich	S3-30	M. A. Neely	S3-30
P. D. Mix	S3-30	H. S. Rich	S3-28
J. E. Trechter	S3-30	L. C. Swanson	E6-35
		File/LB	

Subject: FINAL RESULTS FOR U PLANT CLOSURE CONTAMINANT PLUME REFINEMENT - QC  
- SAMPLE DELIVERY GROUP WSCF20050518 SAF NUMBER F05-011

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001,  
October 31, 2002

(2) HNF-SD-CD-QAPP-017, Rev. 6, Waste Sampling & Characterization Facility Quality Assurance Plan

### Attachments 3

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**M8141-SLF-05-165**

**ATTACHMENT 1**

**NARRATIVE**

**Consisting of 3 pages  
Including cover page**

<b>Sample Delivery Group</b>	<b>WSCF20050518</b>
<b>Sample Matrix</b>	<b>WATER</b>
<b>Sample Visual</b>	<b>N/A</b>
<b>SAF Number</b>	<b>F05-011</b>
<b>Data Deliverable</b>	<b>Summary Report</b>

### **Introduction**

One (1) U Plant Closure Contaminant Plume Refinement (QC)/C4722, 44' - 46', sample (B1CD85) was received at the WSCF Laboratory on March 4, 2005. The sample was analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

### **Analytical Methodology for Requested Analyses**

#### **Organic**

- VOA by EPA Method 8260B. Analytical work was performed with no deviations to the approved method.

#### **Organic Comments**

VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 8 through 9 for QC details. Analytical Notes:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1CD82 (SDG# 20050457, SAF# F05-011).
- Tetrachloroethene – Blank QC sample result exceeded the established laboratory limit. Contamination detected in the associated Blank QC sample was evaluated and there was no significant affect on the sample result. Sample result was below the method detection limit and U-flagged.
- Toluene – Blank QC sample, Laboratory Control QC sample and the Spike Relative Percent Difference exceeded the established laboratory limits. Contamination detected in the associated QC samples was evaluated and it was determined that the contamination

was attributed to an artifact from a waste sample that was run previously. The sample result was slightly above the method detection limit and BJ-flagged.

All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.



Pauline D. Mix  
WSCF Client Services

Abbreviations

Hg – mercury  
IC – ion chromatography  
ICP – inductively coupled plasma  
ICP/AES – ICP/atomic emission spectroscopy  
ICP/MS – ICP/mass spectrometry  
Total U – total uranium  
AT/TB – total alpha/total beta  
AEA – Alpha Energy Analysis  
WTPH-G – Total Hydrocarbons-Gasoline

Am – americium  
Cm – curium  
Pu – plutonium  
Np – neptunium  
GEA – gamma energy analysis  
H3 – Tritium  
Sr – Strontium 89, 90  
WTPH-D – Total Hydrocarbons-Diesel  
TSS – Total Suspended Solids

**M8141-SLF-05-165**

**ATTACHMENT 2**

**ANALYTICAL RESULTS**

**Consisting of 9 pages  
Including cover page**

# WSCF ANALYTICAL RESULTS REPORT


for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:  AD PRICE 4-4-05

Client Services:  P.D. MUR 4/4/2005

*All results are reported on an "as received" basis unless otherwise noted in the comment section.*

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Contract#: FH-EIS-2003-MEM-001  
Report#: WSCF20050518  
Report Date: 4-apr-2005  
Report WGPP/ver. 1.1  
Groundwater Remediation Program

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent  
**Project:** F05-011: F05-011

**Group #:** WSCF20050518

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
<b>Organic</b>														
W050000859	B1CD85	GRP	TRENT	75-35-4	1,1-Dichloroethane	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	79-01-6	Trichloroethene	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	71-43-2	Benzene	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	108-88-3	Toluene	WATER	LA-523-455	BJ	2.70	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	108-90-7	Chlorobenzene	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	127-18-4	Tetrachloroethene	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	67-64-1	Acetone	WATER	LA-523-455		35.0	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	74-83-9	Bromomethane	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	74-87-3	Chloromethane	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05
W050000859	B1CD85	GRP	TRENT	75-09-2	Methylenechloride	WATER	LA-523-455	U	< 1.00	ug/L	1.00	1.0	03/09/05	03/04/05

**MDL=Minimum Detection Limit**  
**RQ=Result Qualifier**

B - The analyte < the RDL but > = the IDL/MDL (inorganic)  
U - Analyzed for but not detected above limiting criteria.

J - Analyte is an estimate, has potentially larger errors

**DF=Dilution Factor**

\* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

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Groundwater Remediation Program

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# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050518  
 Matrix: WATER  
 Test: VOA Ground Water Protection

SAF Number: F05-011  
 Sample Date: 02/24/05  
 Receive Date: 02/24/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050000764 BATCH QC ASSOCIATED WITH SAMPLE									
MS	1,1-Dichloroethene	75-35-4	24.260	97.000	% Recov	03/09/05	63.000	117.000	
MS	Benzene	71-43-2	24.730	98.900	% Recov	03/09/05	75.000	129.000	
MS	4-Bromofluorobenzene	480-00-4	50.310	101.000	% Recov	03/09/05	84.000	116.000	
MS	Chlorobenzene	108-90-7	25.260	101.000	% Recov	03/09/05	79.000	119.000	
MS	1,2-Dichloroethane-d4	17080-07-0	49.150	98.300	% Recov	03/09/05	82.000	136.000	
MS	Toluene-d8	2037-26-5	51.020	102.000	% Recov	03/09/05	89.000	119.000	
MS	Toluene	108-88-3	25.960	104.000	% Recov	03/09/05	76.000	120.000	
MS	Trichloroethene	79-01-6	25.320	101.000	% Recov	03/09/05	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	24.910	99.800	% Recov	03/09/05	63.000	117.000	
MSD	Benzene	71-43-2	24.280	97.100	% Recov	03/09/05	75.000	129.000	
MSD	4-Bromofluorobenzene	480-00-4	49.950	99.900	% Recov	03/09/05	84.000	116.000	
MSD	Chlorobenzene	108-90-7	25.320	101.000	% Recov	03/09/05	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17080-07-0	50.850	102.000	% Recov	03/09/05	82.000	136.000	
MSD	Toluene-d8	2037-26-5	51.390	103.000	% Recov	03/09/05	89.000	119.000	
MSD	Toluene	108-88-3	20.700	82.800	% Recov	03/09/05	76.000	120.000	
MSD	Trichloroethene	79-01-6	24.480	97.900	% Recov	03/09/05	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	99.800	2.645	RPD	03/09/05	0.000	10.000	
SPK-RPD	Benzene	71-43-2	97.100	1.837	RPD	03/09/05	0.000	10.000	
SPK-RPD	Chlorobenzene	108-90-7	101.000	0.000	RPD	03/09/05	0.000	10.000	
SPK-RPD	1,2-Dichloroethane-d4	17080-07-0	102.000	3.694	RPD	03/09/05	0.000	25.000	
SPK-RPD	Toluene-d8	2037-26-5	103.000	0.976	RPD	03/09/05	0.000	25.000	
SPK-RPD	Toluene	108-88-3	82.800	22.698	RPD	03/09/05	0.000	10.000	
SPK-RPD	Trichloroethene	79-01-6	97.900	3.117	RPD	03/09/05	0.000	10.000	

Lab ID: W050000859  
 BATCH QC ASSOCIATED WITH SAMPLE



# WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050518  
Matrix: WATER  
Test: VOA Ground Water Protection

SAF Number: F05-011  
Sample Date: 03/04/05  
Receive Date: 03/04/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	4-Bromofluorobenzene	480-00-4	50.120	100.000	% Recov	03/09/05	84.000	116.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	50.880	101.000	% Recov	03/09/05	82.000	136.000	
SURR	Toluene-d8	2037-26-5	51.860	103.000	% Recov	03/09/05	89.000	119.000	
<b>BATCH QC</b>									
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L	03/09/05			U
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L	03/09/05			U
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L	03/09/05			U
BLANK	4-Bromofluorobenzene	480-00-4	51.180	102.000	% Recov	03/09/05	84.000	116.000	
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L	03/09/05			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	48.110	96.200	% Recov	03/09/05	82.000	136.000	
BLANK	Bromomethane	74-83-9	< 1.0	n/a	ug/L	03/09/05			U
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/L	03/09/05			U
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L	03/09/05			U
BLANK	Tetrachloroethene	127-18-4	3.5	3.500	ug/L	03/09/05			
BLANK	Toluene-d8	2037-26-5	50.440	101.000	% Recov	03/09/05	89.000	119.000	
BLANK	Toluene	108-88-3	16	16.000	ug/L	03/09/05			
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L	03/09/05			U
LCS	1,1-Dichloroethene	75-35-4	23.530	94.100	% Recov	03/09/05	70.000	130.000	
LCS	Benzene	71-43-2	24.870	99.500	% Recov	03/09/05	70.000	130.000	
LCS	4-Bromofluorobenzene	480-00-4	52.900	106.000	% Recov	03/09/05	84.000	116.000	
LCS	Chlorobenzene	108-90-7	25.270	101.000	% Recov	03/09/05	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	49.160	98.300	% Recov	03/09/05	82.000	136.000	
LCS	Toluene-d8	2037-26-5	51.910	104.000	% Recov	03/09/05	89.000	119.000	
LCS	Toluene	108-88-3	59.860	239.000	% Recov	03/09/05	70.000	130.000	
LCS	Trichloroethene	79-01-6	25.420	102.000	% Recov	03/09/05	70.000	130.000	

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent  
Project Number F05-011

Group #: WSCF20050518

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		VOA: Toluene carryover from concentrated waste sample was higher in the Blank than in the sample W050000859. Hence it is likely to be an artifact in this sample, and is why the LCS recovery and SPK-RPD for Toluene was out high. gar

Lab Areas: VALGROUP - Group Validation  
LOGSAMP - Login for Sample

VALTEST - Test Validation  
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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wgppc/1 Report#: WSCF20050518

Report Date: 4-apr-2005

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**WSCF**  
**TENTATIVELY IDENTIFIED PEAK REPORT**

**Attention:**  
**Project Number**

:

**Group #:** 20050518

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Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
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RQ=Result Qualifier

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# WSCF

## METHOD REFERENCES REPORT

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The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

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LA-523-455	LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846
	EPA SW-846 8000B DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
	EPA SW-846 8260B VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)

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Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at <\\ap006\aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf>. This document includes on-line links to full-text versions of the procedures and methods, where available.

Report Date: 4-apr-2005  
Report#: WSCF20050518  
Report WGPPM/O

w13qlog v1 04-apr-2005 08:04:09

W13q Worklist/Batch/QC Report for Group# WSCF20050518

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			29296	BLANK		VOA Ground Water Protection
			29296	LCS		VOA Ground Water Protection
			29296	MS	W050000764	VOA Ground Water Protection
			29296	MSD	W050000764	VOA Ground Water Protection
			29296	SPK-RPD	W050000764	VOA Ground Water Protection
			29296	SAMPLE	W050000859	VOA Ground Water Protection
			29296	SURR	W050000859	VOA Ground Water Protection

**M8141-SLF-05-165**

**ATTACHMENT 3**

**SAMPLE RECEIPT INFORMATION**

**Consisting of 3 pages  
Including cover page**

Waste Sampling and Characterization Facility  
P.O. BOX 1970 S3-30, Richland, WA 99352  
PHONE: (509) 373-7004/FAX: (509) 373-7134

File  
4/4/05  
13

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354  
Attn: Steve Trent

Customer Code: GPP  
PO#: 119141/ES10  
Group#: 20050518  
Project#: F05-011  
Proj Mgr: Steve Trent A0-21  
Phone: 373-5869

The following samples were received from you on 03/04/05. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W050000859	B1CD85	GRP @VOA-GPP	TRENT Water	03/04/05

Test Acronym Description

Test Acronym	Description
@VOA-GPP	VOA Ground Water Protection

Collector		Chain of Custody / Sample Analysis Request		Page 1 of 1	
Floor Hanford Inc		Company Contact		F05-011-006	
POPE/PISTER/TYRANOKLER		Telephone No.		PRICE CODE 7N	
44774 4474-4047		372-9004		TRENT, SI	
SAMPLING LOCATION		PROJECT DESIGNATION		AIR QUALITY <input type="checkbox"/>	
HQ-026		U Plant Closure Contaminant Plume Refinement - QC		45 Days / 45 Days	
ICE CHEST NO.		FIELD LOGBOOK NO.		METHOD OF SHIPMENT	
44774 4474-4047		HDFEN-4391		GOVERNMENT VEHICLE	
SHIPPED TO		OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.	
Waste Sampling & Characterization		N/A		N/A	
MATRIX*		PRESERVATION		NO OF H2SO4	
A-Air				No pH <2/Coal	
DL-Drum				4C	
Liquids				365°	
DS-Drum					
Solids					
L-Liquid					
O-Oil					
S-Soil					
SE-Sediment					
T-Tissue					
V-Vegetation					
W-Water					
WT-Wipe					
X-Other					
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
20050518					
SAMPLE NO.		SAMPLE DATE		SAMPLE TIME	
B1CD85		3/4/05		0840 X	
MATRIX*					
WATER					
CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN		(1) VOA - 82608 (TC) (Acetone, Bromomethane, Chloroethane, Methyl chloride, Tetrachloroethene, Toluene)	
DATE/TIME		DATE/TIME			
10:35		3/4/05			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
DATE/TIME		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
DATE/TIME		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
DATE/TIME		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
DATE/TIME		DATE/TIME			
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN			
DATE/TIME		DATE/TIME			
LABORATORY SECTION		RECEIVED BY		TITLE	
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY	